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Community Cotton Improvement in North Carolina

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Community Interest in the Improvement of Cotton.

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Community Cotton Improvement in North Carolina

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Office of Plant Breeding, Division of Agronomy

What is community seed improvement?

It is the choosing of one good variety of one or more crops by the growers of a community and keeping it to a high standard of yield and quality by selecting seed from the best plants in the field each year.

How can a community decide upon the best variety?

With the help of your county agent and the Division of Agronomy conduct a variety test which will include the varieties generally grown in your community and a few varieties which are recommended for your section by the Division of Agronomy. The variety which yields best will be chosen by the growers of the community.

How is a community variety test conducted?

The variety test is conducted on one centrally located farm of the community by planting the varieties in rows or plats side by side. It is important that the land be uniform so that each variety will have an equal chance. If ten varie-

Figure II
A community variety test in which each variety is given the same chance. The best variety is chosen for future growth in the community. (Edgecombe County.)

ties are to be tested thirty-two rows are prepared. The two outside rows are planted as guard rows and not considered in the test; then, beginning next to the guard row, one row of each of the varieties is planted. When the first

ten rows are planted the varieties are repeated until three rows of each variety have been planted. The rows are made two to three hundred feet long so that not more than one-half acre will be needed to test ten or fifteen varieties.

Why not plant the varieties on larger plats?

Because the smaller areas are usually more uniform in fertility and it is much easier to get accurate yields from smaller plats. The yields are always carefully weighed and the product priced on the market to see which variety is producing the largest money value per acre.

Would Cleveland big boll cotton seed be the same gotten from any source?

No, the yield from seed is dependent upon the care that has been used in their selection and handling. In one of our tests the carefully selected Cleveland Big Boll seed produced $40.00 more per acre than the same variety which had been allowed to go without selecting and was allowed to become mixed at the gin. The improved seed cost $1.50 more per acre but yielded $40.00 more in return. Before buying seed of any crop ask your county agent or the Division of Agronomy for the best sources of improved seed for your section.

Improved seed will not keep up their high yield and quality indefinitely. Unless good seed are saved from the best plants each year they will soon become mixed and unproductive. If seed are not selected each year they should be bought at intervals of two or three years from the nearest grower who is practising careful seed selection in the field each year.

What crops could be improved in this way?

Cotton, corn, oats, soybeans, wheat, tobacco, cowpeas, rye, in fact all of our crops.

What are the advantages of community seed improvement?

It furnishes the community with high yielding strains of crops, and gives a uniform produce which can be marketed with greater profit on account of its good quality and uniformity. The growing of one good variety of each crop lessens the danger of mixing in the field or during harvest.

Has this method of seed improvement been used successfully in North Carolina?

Yes, through this work more than fifty communities have been furnished with better seed. Since the work was started in 1914 the improved strains recommended by the Division of Agronomy have failed to take first place in only one community. The improved strains have yielded from $5.00 to $60.00 per acre more than the best unimproved varieties grown in the communities and in all of the tests conducted with cotton during the past five years the improved varieties have averaged $28.97 per acre more than the varieties previously grown in the communities.

How can my community take advantage of this work?

Interest the growers of your community in the work, and ask for help from your county agent or the Division of Agronomy, West Raleigh, N. C.

THE NEED FOR COTTON IMPROVEMENT

The value of cotton fiber to the manufacturer is to a large extent dependent upon its length and uniformity. The very short fiber that is furnished by such varieties as Half and Half, King, Ricks, and the poor strains of Cook, must be used in making yarn and cotton goods of low quality. The short fibers do not make strong and durable materials and are, therefore, not as valuable to the manufacturer as the longer fiber furnished by Lone Star, Texas Rowden, Mexican Big Boll, Cleveland Big Boll, and others. Varieties that are not selected each year and kept free from mixtures at the gin usually furnish lint very irregular in length. One will often find samples from such cotton containing fibers three-fourth of an inch long, others seven-eighths, and still others fifteen-sixteenths of an inch in length. The manufacture of cotton goods from such mixtures is accompanied by a large amount of waste and more labor is required to attend machinery with which it is being handled.

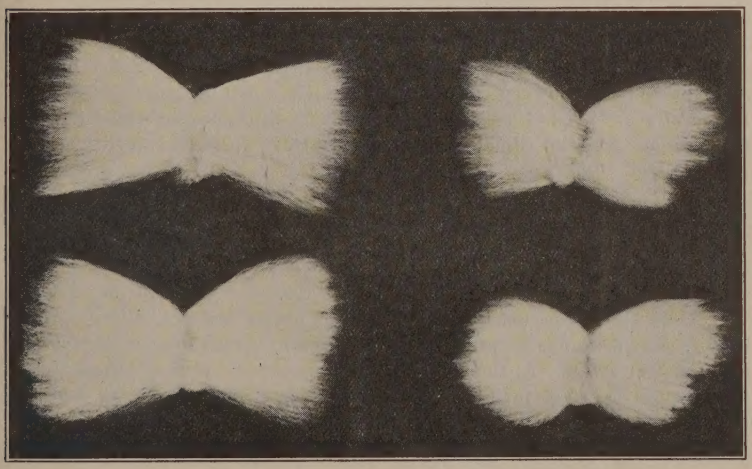

FIGURE III

(1) (2)

(1) Uniform long fibers from the improved Big Boll varieties such as Lone Star, Texas Rowden, Mexican Big Boll, Cleveland Big Boll and others.
(2) Fibers combed out on seed of the unimproved small boll varieties such as King, Simpkins, Ricks, Half and Half and others.
The best big boll varieties yield more and their lint is worth more per pound.

In most communities where no action has been taken to improve their seed, one will find several varieties in the same community, in fact, two or three varieties are often grown on the same farm. On account of the growth of poor unimproved varieties certain communities get the reputation of growing a poor grade of cotton. The writer recently visited a community that was forced to sell its cotton at one-half to one cent per pound below the market price on account of the short staple and low quality. Ten miles away, growers of a neighboring community were selling their cotton at two to three cents per pounds above the market price, because they were using improved seed of a good variety.

More than ninety-five per cent of our cotton is ginned at public gins, or on private gins that handle two or more varieties of cotton; and no other operation in the handling of cotton is attended with so much mixing of seed. The ginning machinery and seed conveyors are so constructed as to make it difficult to gin several varieties and keep them free from mixtures. In time, the public gins are likely to be used more generally since they are better prepared to put in improved machinery and labor-saving devices. The communities that are handling this problem to best advantage are those that are choosing one variety for the community. In such communities the ginners have given splendid cooperation by having certain days to gin the cotton chosen by the community. A few ginners are planning to put in small power gins and cleaners that may be used for handling field selected seed.

There is a belief among some cotton growers and most buyers, that North Carolina cannot produce cotton of as good quality as that produced in Georgia or in the Delta Region of the Mississippi. Some attribute this to our soils, others to our climate. The impression of the buyers has been somewhat justified by the large amount of short inferior cotton that has been offered for sale on our markets. The cause for this, however, cannot be charged to our soil and climate but to our general use of unimproved small boll varieties of cotton. In recent years it has been demonstrated that with improved seed and proper handling our soil and climate will produce cotton of the best quality.

HOW CAN I IMPROVE MY COTTON?

First of all be sure that you have the variety best adapted to your section. If you are growing King, Simpkin's, Mitchell's, Ricks', Trice, or other early small boll cottons on land that will mature Cleveland Big Boll, Mexican Big Boll, Lone Star, Edgecombe, Cook, or other improved big boll cottons you may be sure that a change in variety would be the first step toward the improvement of your cotton. At the end of this season the Division of Agronomy will have results on cotton varieties from the following counties: Anson, Beaufort, Bertie, Chowan, Craven, Cumberland, Edgecombe, Greene, Halifax, Hertford, Iredell, Johnston, Lenoir, Lincoln, Martin, Mecklenburg, Onslow, Pasquotank, Pender, Sampson, Scotland, and Wake.

These counties are so distributed over the cotton growing section of the State as to furnish reliable information regarding the varieties suited to the different sections. The grower who wishes to get new seed should by all means take advantage of this information. In addition to knowing the varieties that are yielding the largest money value per acre, it is important to know where good seed may be secured. Variety name means very little unless we know something about the breeding and care the seed have had. It is poor economy to buy cheap seed. The man who selects seed in the field each year and uses care to prevent their mixing deserves a better price for his seed than the grower who doesn't select good seed. The source of seed usually means more than the name of the variety. In one of our tests conducted in Anson County, Cleveland Big Boll cotton seed from a careful breeder produced $50.43 more per acre than Cleveland Big Boll seed that had come from the same source five years ago. The low-yielding strain had become mixed at the gin and no care was used in saving good seed.

WHICH DO YOU GROW?

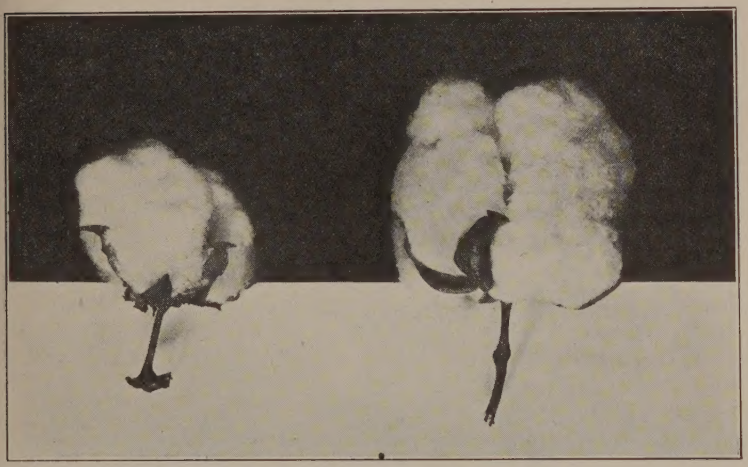

FIGURE IV

This small boll cotton requires 110 bolls to pick one pound of seed cotton. This big boll cotton requires only 60 bolls to pick one pound of seed cotton.

Varieties such as Cleveland, Mexican Big Boll, Lone Star, and Edgecombe-Cook furnish large bolls which require less labor in picking. Lint from these varieties brings a better price because of its longer staple and uniformity.

CARE FOR GOOD SEED

Too often growers secure a small amount of improved cotton seed expecting to gradually increase them until a sufficient quantity is grown to plant the entire crop. From association in the field, in the storage house, and at the gin the new seed soon become as badly mixed as the old. If we are to produce the best quality of cotton it will be necessary to buy seed from a neaby breeder each two or three years, or select good seed in the field each year. Even if outside mixtures are prevented from coming in, any variety or strain of cotton, however pure, will in the course of one or two years show mixtures. These mixtures are not only plants differing in size and shape but plants differing in yield and the quality of lint they produce.

In 1914 two plants were selected from a field of King cotton on the State College farm. The seed cotton from each plant was saved and ginned separately on a hand gin. Since that time the seed from these two plants have been kept separate and the yield of seed cotton compared each year. During the past five years the offspring of one plant have yielded at the rate of 2061.78 pounds per acre, while those from the other plant have only yielded at the rate of 985.1 pounds per acre. Certain plants in all of our fields are poor yielders and if seed are saved from them they reproduce poor yielders. The only way to get rid of such plants is to save enough seed for a seed patch each year from the best plants in the field. Saving good seed each year should be considered just as important a part of successful cotton growing as culti-

vation or fertilization. One cannot grow good cotton without cultivation or fertilization, nor can it be done without the use of good seed, and the best way to get cotton seed is to save them from one's own field.

FIGURE V

(1) (2)

The strains from which these two plants came were selected from the same variety in 1914. During the past five years number (1) has yielded at the rate of 2061.78 pounds of seed cotton per acre and number (2) has yielded only 985.1 pounds per acre.
Is your cotton yield being reduced by unproductive plants like number (2)?

SAVING SEED FROM THE BEST PLANTS IN THE FIELD

After a good strain of cotton has been secured from a breeder, don't wait until it is mixed and unproductive before selecting good seed, begin the first year by saving seed from the best plants. Just before the first picking go over the field and mark 250 to 300 of the best plants with string tags or small strips of old rags. The markers usually show up better if the top leaves of each selected stalk are stripped off. Warn the pickers not to pick the marked plants. Before the second picking make another examination of the plants that were selected and take the tags from any that are diseased or show other undesirable qualities. If the number is reduced to 175 to 200 good plants this amount will furnish one bushel or more of good seed. At this time have a careful picker harvest the seed cotton from all of the selected plants before the general pickers are turned in. Keep the selected seed cotton in a different room from the general crop cotton and spread it out well so it will be thoroughly dried. Good seed must be kept dry.

Save the selected seed cotton until the gin roll and boxing can be thoroughly cleaned of stray seed. Too much care cannot be used in ginning the seed which are to be used in planting the seed patch. In the spring the select seed should be planted in a field away from the general crop cotton or fields containing other varieties. A section on the edge or through a corn field would be good. The size of the seed patch can be as large as the amount of selected seed will allow. If the seed patch is large enough to furnish seed for the entire crop next season, so much the better. The best plants in the seed patch are saved each year to furnish seed for the next year's seed patch. After the first seed patch is started it is an easy matter to keep the seed pure and to a high standard of yield.

FIGURE VI

A good type of plant to save for seed.

1. High yielding
2. Early
3. Large bolls
4. Free from disease

THE KIND OF PLANTS TO SAVE FOR SEED

A good cotton plant should have the following qualities:

1. It should have a goodly quantity of well formed bolls.
2. The plants should be sufficiently early to mature in an average season, but not so early that it will not take advantage of the whole season to produce its crop. The very early plants are usually low in production.
3. The lint should be uniform in length and of good quality. (See Fig. II on page 5.)
4. A seed plant should be free from disease; for our most destructive cotton diseases are carried over in the seed.
5. The best seed plant should be able to pass its good qualities on to its offspring. (See discussion on plant-to-row-breeding on page 11.)

Every cotton grower who wishes to grow a cotton that yields well and produces lint of good quality should first of all secure good seed of a variety that has been selected for these qualities. Take advantage of the many years of work and care that have been given by other breeders and then further improve the strain for your conditions.

QUESTIONS FREQUENTLY ASKED ABOUT SELECTING COTTON SEED

1. Shall I save seed from the first open bolls in order to increase the earliness of my crop?

If earliness is desired, save seed from the plants that open a large portion of their bolls early. The earliest boll to open on a plant is no more capable of producing early maturing plants than the latest boll on the plant. All of the well matured seed of a plant have the same possibilities, it matters not from what portion of the plant they are taken. If the plant is good, get as large quantity of seed as possible from it.

Beware of very early plants while selecting big boll cotton; they usually make a big show on account of the number of open bolls, but upon closer examination they will usually be found to have small bolls and short lint. In one community of the State where the early small cottons are very popular a big boll cotton was introduced ten years ago. All of the cotton of this community is ginned at a public gin. During the past year a field of this big boll cotton was examined and none of the plants were bearing big bolls; in fact, the cotton could not be distinguished from King Cotton. The big boll cotton had been entirely replaced by the early small boll cotton during the ten years.

2. Shall I save only the five-lock bolls from the best plants?

If a five-lock cotton is desired save seed from the plants that have the largest number of five-lock bolls. Always save seed from the plants of good quality rather than from individual bolls.

3. Where do the black smooth seed of cotton come from?

The smooth black seed are found in Sea Island cotton and several of the old varieties, such as Peterkin, Sugarloaf, and King. Through mixing at the gin and in the field most of our varieties have become mixed with black seed. The plants bearing black seed are usually very low in percent of lint. The smooth seeded plants should not be saved for seed and every effort should be used to keep them out of the planting seed.

4. What are pedigreed seed?

Pedigreed seed are seed that have been increased from one high yielding plant and kept pure. Seed from one good plant will plant a row two hundred feet long and the seed saved from this row will plant one-half to an acre of ground. The acre will produce from twenty to thirty bushels of good seed. (See discussion of Plant-to-row Cotton Breeding, on page 11.) Seed that have not been increased from one superior plant and kept pure should not be sold as pedigreed seed.

How many years shall I select good seed?

Saving good seed has no limit of time; it should be done each year as regularly as the operations of planting, cultivating, and harvesting. Lack of care one year may undo the work of three.

WHAT ARE IMPROVED COTTON SEED?

In the minds of most cotton growers improved cotton seed are those that have come from a crop which produced one bale or more per acre. While high yield is an important factor in the choice of planting seed, this basis of selection may be misleading. The high yield may have been due to a fertile soil, favorable season, good culture, or to the use of large quantities of fertilizer. Under the same conditions another variety might have yielded even better.

Seed from a large crop may be poorly handled in the field or in the storage house, rendering them almost worthless for seed purposes. Too often the seed cotton is picked wet and not allowed to dry out before storing, thus becoming damaged by heating. Seed with a large quantity of moisture may be packed away in such a way as to heat. Another point which is often overlooked by cotton growers is the saving of seed from half-cracked bolls. With the object of increasing their weights certain pickers take a large number of bolls only partially open. The seed of these bolls are not thoroughly matured and are therefore not prepared to germinate into strong vigorous plants.

FIGURE VII

(1) (2) (3)

These three strains of cotton were selected from one variety. Note the difference in height and earliness. Each row was given the same treatment throughout the season. Most of our North Carolina varieties are badly mixed. Only careful saving of seed from desirable plants in the field can remedy this.

PLANT-TO-ROW COTTON BREEDING

If the selections are to be made from a mixed variety, the plant-to-row system of cotton breeding is very essential. In fact, the plant-to-row system is the quickest way to find the high yielding strains of cotton. One often finds that a splendid looking plant is unable to reproduce its good qualities, and if the seed of this plant were mixed with a lot of others it would take longer to separate out the better yielding strains.

For this reason, it is customary among the best cotton breeders to save seed from a large number of good plants and plant the seed from each plant in a separate row. The seed from a good plant will plant about 200 feet of row if planted by hand in hills two feet apart. The object of planting the seed from each plant in a row is to compare its yield with the other select plants and the general run of seed. One acre of ground will be large enough for fifty to seventy-five plants, depending upon the length of row used. The greater the number of plants used the better the chance of finding something good. Make all of the rows the same length and give each a number to correspond with the number of plants planted in it. Plant every tenth row from the general crop seed to compare with the selections, it will help to discard the selections that are poor yielders. In the fall pick the seed from each row separately and compare the yields by actual weight. Save the seed from the best five rows for comparison another year. The following year plant a short row from each of the five best strains for comparison and increase the remaining seed from these rows. The results of the short rows will help to throw out other strains and one good strain may be selected from the five. The plant-to-row system is simply a means of comparing the yielding qualities of the selections. After two or three years work with the plant-to-row system the best strain may be kept to a high standard of yield by saving seed from the best plants in the seed patch each year.

FIGURE VIII

Cotton seed patch. Note the uniformity. Each plant is doing its part to produce a high yield. Seed for this patch were selected in the field in Craven County.

RESULT OF THE WORK WITH COMMUNITIES

Anson County

In Anson County three communities have started cotton improvement work. The communities are so distributed over the county as to represent the principal soil types and climatic conditions found in the county. One of these com-

munities is located north of Polkton, about seven miles, and is known as the Diamond Hill community; another is located in the sandhills, about ten miles southwest of Wadesboro, and the third is located near Macfarland.

During the season of 1919 two variety tests were conducted in the county, one in the Diamond Hill community and the other in the sandhills, southwest of Wadesboro.

Results of the Test in the Diamond Hill Community

The test in this community was conducted on the farm of Mr. J. M. Sykes. The soil of this farm is listed as Georgville Silt Loam. At a meeting held on Mr. Sykes' farm in the spring it was agreed to test the varieties generally grown in the community, along with four varieties that had given good results in previous tests on similar soil. The varieties were planted in rows side by

FIGURE IX

Cotton growers of the Diamond Hill Hill Community (Anson County) and their County Agent selecting a field on which to plant the cotton variety test. They find it profitable to cooperate in the improvement of their cotton.

side and given the same treatment throughout the growing season. At the time of harvest the county agent held a field meeting for the benefit of the growers in the community. There were twenty-eight folks of the community at the meeting to examine the size of boll, length of staple, earliness and other qualities of the different varieties. After a short discussion of the qualities of the different varieties, each person present helped gather the seed cotton from each variety separately. After the harvesting was completed the seed cotton from each variety was carefully weighed. Small samples were then taken from the seed cotton of each variety and sent in to Raleigh to determine the percent of lint or "turn out" at the gin, length of staple and market value per pound. Similar meetings were held for the other two pick-

ings. When the work was completed a meeting was held in the community and the following results presented to the growers:

TABLE I—COTTON VARIETY TEST, ANSON COUNTY—1919

J. M. Sykes, Coöperator

Variety	Seed Cotton Per Acre, Pounds	Seed Per Acre, Pounds	Lint Per Acre, Pounds	Per Cent Lint	Length of Staple Inches	Money Value Per Acre,	Source of Seed
Mexican	2180	1264	816	37.45	1 1/16	$387.06	Coastal Plain Branch Station.
Wannamaker-Cleveland	2249	1390	859	38.20	1	367.11	Model Seed Farm.
Cook's Improved	2158	1321	873	38.80	7/8	356.32	Pedigreed Seed Co.
Cook	2041	1228	813	39.86	1 1/16	343.93	W. W. Eagles.
Northicutt, No. 1	2132	1231	801	37.60	7/8	339.41	Local.
Webb's Wonder	2067	1336	731	35.40	1 1/16	318.79	Local.
Cleveland	1963	1225	738	37.62	1 1/16	316.68	Local.
Webb's Wonder	2000	1271	729	36.45	7/8	315.32	Local.
Simpkins	1807	1139	668	37.00	7/8	287.98	Local.
Northicutt, No. 2	1794	1049	645	36.00	1	275.95	Local.
Duke's Oklahoma Imp.	1768	1144	624	35.30	7/8	272.11	Local.

Prices based on 36 cents for short staple; 42 cents for 1 1/16 staple. Cotton seed at $1.25 per bushel.

In this test the Wannamaker Cleveland yielded the greatest amount of seed cotton and lint, but when the lint was priced and the money value per acre calculated, the Mexican Big Boll sold for $20 more per acre on account of its

Figure X

Cotton growers of Diamond Hill Community receiving the results of their cotton variety test.

longer staple. The Mexican Big Boll was a little late for this section, so when the matter was put to the vote of the growers of the community the Wannamaker Cleveland was chosen for the future planting in this community. The

growers have secured the best seed of this variety and are planning to further improve it for this section by selecting seed from the best plants in the field.

In the sandhill section the test was made on the farm of Mr. B. C. Jones. In this test the Wannamaker Cleveland produced the largest yield and was chosen for future growth by the growers of the community.

In order to more completely cover the soil conditions another test is being conducted near Macfarland. The soil of this section should grow a good grade of long staple cotton so the test here includes a few of the best long staple varieties along with several of the leading short staple varieties.

The success of the community work in Anson County is due to a large extent to the splendid work done by Mr. J. W. Cameron, County Agent, and to the careful tests conducted by Mr. J. M. Sykes and Mr. B. C. Jones. When the results of these tests were presented to the growers of the county the county agent received requests for more than 1,800 bushels of the improved cotton seed. Turn back to the table and note the difference in money value between Wannamaker Cleveland and the best variety grown in the community. The difference is $27.70. Now estimate the value of introducing 1,800 bushels of improved seed into this county. Does your community have high yielding seed?

Beaufort County

Two variety tests were conducted in Beaufort County, one at Aurora and the other at Bath. The test at Aurora was planted on the farm of Mr. C. L. Broom. The soil on which this test was made is black, though well drained. In this locality the Mexican Big Boll cotton yielded best and improved seed of this variety were introduced into the community.

TABLE II—COMMUNITY COTTON VARIETY TEST—1917

CONDUCTED ON THE FARM OF C. L. BROOM, AURORA, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed	Total Value Lint and Seed Per Acre
						Per Pound Cents	Per Acre		
Mexican Big Boll	880	295.2	580.8	34.0	1 1/16	32	$94.46	$20.32	$119.78
Cook	847	309.2	537.8	36.5	7/8-1 1/8	30.5	94.30	18.82	113.12
Ricks (local)	825	268.1	556.9	32.5	7/8-1 1/8	30.5	81.77	19.49	101.26
King, No. 29	770	254.1	515.9	33	7/8	30.5	77.50	18.05	95.55
Trice	715	217.1	497.9	30.5	1 1/8	30.5	66.21	17.42	83.63
Cleveland Big Boll	550	199.7	350.3	36.3	1 1/8	30.5	60.90	12.26	73.16
Half and Half (local)	275	85.3	189.7	31	7/8-1 1/8	30.5	26.01	6.63	32.64

The test at Bath was planted on the farm of Mr. J. D. Eborn. The soil of this farm was fertile, but was poorly drained. On account of the shallow water table the cotton grew late and made considerable vegetative growth. In this test the Edgecombe Cook yielded best and produced the greatest money value per acre.

Improved seed of both of these varieties were introduced into the county, but no seed selection has been practiced. There is, however, a splendid oppor-

tunity for someone to select seed from one of these varieties and produce a strain adapted to this section. Until this is done the growers of this county are likely to have trouble with immature and damaged cotton.

TABLE III—COMMUNITY COTTON VARIETY TEST—BEAUFORT COUNTY, 1917

CONDUCTED ON THE FARM OF J. D. EBRON, BATH, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Cook	860	309.0	551.0	37.1	7/8	30.5	94.24	19.28	$113.52
Wannamaker-Cleveland	780	284.7	495.3	36.5	1 1/16-1	31.0	88.25	17.33	105.58
Perry's Improved	790	267.8	522.2	33.9	7/8-1 1/16	30.5	81.67	18.27	99.94
Gold Certificate (local)	760	256.9	503.1	35.8	7/8-1 1/16	30.5	78.35	17.60	95.95
Ricks' Improved (local)	750	249.8	500.2	33.3	1 1/16	30.5	76.18	17.50	93.68
King, No. 29	720	241.9	478.1	33.6	7/8-1 1/16	30.5	73.77	16.73	90.50
Mexican Big Boll	700	231.0	469.0	33.0	1 1/16	32	73.92	16.41	90.33

Bertie County

The work in Bertie County was started this spring with the Farm-Life School at Aulander. In this test Jenkins' Prolific, Dunning, King, Wannamaker Cleveland, Mexican Big Boll, and Edgecombe Cook are being compared. If you live in the section around Aulander keep in touch with this test.

Chowan County

The work in this county was started this spring in Byrd Community, about four miles from Edenton. The variety test here is being conducted on the farm of Mr. J. B. Webb. Secure the results from your county agent.

Craven County

In Craven County the community cotton improvement work was begun in 1916. Variety tests were made in three communities, one on the farm of Mr. J. E. Daugherty, about eleven miles north of New Bern; one on the farm of Mr. G. T. Richardson, just out from New Bern, and another on the farm of Mr. J. T. Bland, near Vanceboro. Among the varieties included in these tests are Cleveland Big Boll, Heavy Fruited, Trice, Durango, Mexican Big Boll, Cook, and Hawkins. Since the test on Mr. Daugherty's farm is fairly representative of the larger portion of the county the results of his are given below.

In this test the Wannamaker Cleveland yielded best and produced the greatest money value per acre. This variety was chosen for future growth in the community. This strain is now being selected by Mr. J. E. Daugherty, and his farm has been a source of pure seed of this strain during the past three years. Mr. Daugherty secured the best selected seed and has since further improved the strain for his section by selecting seed from the best plants each year. The first year over two hundred good plants were saved for seed. These were finally culled down to one hundred and seventy-five of the best plants.

The seed of each of these select plants were planted in a separate row, side by side, and given the same amount of fertilizer and culture throughout the season. This whole field which came from select plants was a fine piece of cotton, but twelve rows were unusually good in yield and quality of staple. These highest yielding rows were numbers 18, 27, 28, 35, 46, 82, 88, 93, 111, 162, 166, and 173. The best plants were saved for seed from each of these rows and the best of the remaining seed were saved to plant the general crop. Mr. Daugherty has a private gin which handles only this one variety. With this precaution and the saving of good seed each year this will be the best source of good cotton seed for this section of the State.

TABLE IV—RESULTS OF COTTON VARIETY WORK—1916

FARM OF J. E. DAUGHERTY, NEW BERN, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed at $70.00 Per Ton	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Cleveland (Model Seed Farm)	1260	473.7	786.3	37.6	1	$ 0.20	$94.74	$27.52	$122.26
Heavy Fruiter, No. 1	1260	472.5	787.5	37.5	7/8	.20	94.50	27.56	122.06
Trice	1260	441.0	819.0	35.0	1 1/8	.20	88.20	28.66	116.86
Heavy Fruiter, No. 2	1200	444.0	756.0	37.0	1	.20	88.80	26.46	115.26
Durango	939	375.6	563.4	40.0	1 1/16	.25	93.90	19.72	113.62
Mexican	1155	433.0	722.0	37.5	1	.20	86.60	25.27	111.87
Cook	1080	391.0	689.0	36.2	7/8	.20	78.20	24.11	102.31
Hawkins	930	344.1	585.9	37.0	1 1/8	.20	68.82	20.50	89.32

Estimates based on middling cotton at 20 cents and cotton seed at $70.00 per ton. Quotations December 8, 1916.

In the poorly drained soils of this county the Trice cotton, an early maturing variety, has given the best results.

At Vanceboro, the Cleveland cotton was also chosen on account of its high yield and good quality of staple. The seed improvement work in this community is being done in cooperation with the Farm-Life School. The location of the work at this school should make it valuable to both the students and the cotton growers of the community.

Cumberland County

The work in Cumberland County was started on the farm of Mr. R. W. Christian, in 1916. In order to determine the variety best suited to this section a variety test was planted which included the following varieties: Lone Star, Mexican Big Boll, Wannamaker Cleveland Big Boll, Wright's Prolific, Webber 49, Utopia, and Hartsville No. 12. In yield of seed cotton and money value per acre the varieties ranked in the order named above. Lone Star produced the largest yield of seed cotton and exceeded the best local variety by $43.06 in money value per acre. The Lone Star cotton bears a large boll and furnishes one and an eighth inch staple. This variety has been carefull selected on Mr. Christian's farm during the past three years. This strain is especially adapted

to the well drained sandy and sandy loam soils of the southeast. During past two seasons it has brought a premium of 5 to 20 cents per pound over ordinary short staple cotton.

The future outlook for strains of this type that furnish $1\frac{1}{16}$ to $\frac{1}{8}$ inch cot is very good. The demand for such cotton is practically unlimited, and better strains of this kind of cotton produce almost as much lint as the short staple strains. The price of lint from varieties like Lone Star, Mexi and Texas Rowden is likely to be effected less by a large crop than that of poorer grades of short staple or the long staple cottons. When these varie are grown it is very essential to keep them free from mixtures of shorter st cotton and in order to produce a uniform staple it is necessary to select s from good plants each year or buy seed from a grower who does save good s In the section known as the seventy-first district of Cumberland County Wannamaker Cleveland has given splendid results.

Edgecombe County

The first community cotton test in the State was conducted in the Crisp C munity of Edgecombe County, in 1915. Two variety tests were made in community, one on the farm of Mr. W. W. Eagles and the other on Mr. R. Hearn's place. Since the two tests gave the same results, except for Mexi Big Boll, the results of only one test is given here. On Mr. Hearn's farm Mexican yielded best, but was closely followed by the Cook cotton.

TABLE V—CRISP COMMUNITY COTTON VARIETY TEST, EDGECOMBE COUNTY—FARM OF W. W. EAGLES

Variety	Date of First Picking	Yield of First Picking	Date of Second Picking	Yield of Second Picking	Total Yield Per Plat	Yie Pe Ac
Cook	Oct. 13	74	Nov. 12	15½	89½	18
Hope's Mexican	Oct. 13	71	Nov. 12	15	86	17
Culpepper	Oct. 13	67	Nov. 12	18	85	17
Johnson Big Boll	Oct. 13	69	Nov. 12	15	84½	17
Half and Half	Oct. 13	69	Nov. 12	15	84½	17
Briley Mexican	Oct. 13	68	Nov. 12	15	83	17
Rick's	Oct. 13	72	Nov. 12	10	82	16
Cleveland Big Boll	Oct. 13	73	Nov. 12	8	81	16
King (Station)	Oct. 13	68	Nov. 12	7½	75½	15
King (Holderness)	Oct. 13	65	Nov. 12	8½	73½	15

At a meeting of the growers of this community the Cook cotton received p tically a unanimous vote, so was adopted for future growth in this commun

The best seed of this strain of Cook (then known as Jones's Improved), w secured by the growers of the community, in fact the whole community operated to make the growth of this variety a success. The ginner agree have certain days for ginning the community cotton. The gin was thorou cleaned and no other variety was handled on the day set aside for the munity strain. Both Mr. Eagles and Mr. Hearn have selected seed from t best plants during the past four years. This strain now known as Edgeco Cook has gradually spread into adjoining communities and to other part the State.

The result from Mr. Hearn's seed patch are of interest:

TABLE VI—YIELDS OF SEED COTTON FROM THE OFFSPRING OF INDIVIDUAL PLANTS—1917

FARM OF MR. R. W. HEARN, MACCLESFIELD, N. C.

Plant No.	Pounds Seed Cotton Per Row	Per Cent Lint	Length of Staple	Yield of Seed Cotton Per Acre, Pounds
1	19	39.53	7/8—	1780.3
2	24¼	39.33	7/8+	2272.2
3	18¾	39.53	7/8—	1756.9
4	23½	40.47	7/8—	2201.9
5	18¼	39.53	7/8—	1710.0
7	23½	39.53	7/8	2202.0
8	14¼	39.53	7/8	1335.2
9	17¾	39.53	7/8	1663.2
10	16	40.39	7/8—	1499.2
11	19	39.53	7/8	1780.3
12	18¼	39.53	7/8	1710.0
13	14¾	39.53	7/8	1382.1
14	14½	39.53	7/8	1358.6
15	13½	39.53	7/8	1264.9
16	16¾	39.15	7/8	1569.4
17	18¾	39.53	7/8	1756.9
18	16½	40.42	7/8—	1546.0
19	20¼	39.53	7/8	1897.4
20	15	38.76	7/8+	1405.5
21	16½	37.86	7/8	1546.0
22	16¾	36.72	H	1569.4
23	21¾	39.53	7/8	2048.0
24	10½	39.53	7/8	983.8
25	18½	39.53	7/8	1733.4
26	14¾	40.32	7/8	1382.0
27	15½	39.53	7/8	1452.3
28	13¼	39.09	7/8	1241.5
29	14¾	39.53	7/8	1382.1
39	8	39.53	7/8	749.6
40	9½	39.53	7/8	890.1

Note the difference in yield of offspring from different plants. Each lot received the same amount of space and the same treatment throughout the season.

In the fall of 1916 about 75 of the best plants were saved for seed. When these plants were examined for percent of lint and length of staple only 46 were saved for the seed patch; the remainder were either very short staple, low in percent of lint, or had some other undesirable quality. The seed of each plant was planted in a separate row in order to compare the yield and other qualities of the offspring of each plant. As will be seen by examining the table above some plants produce much higher yielding offspring than others. It is good to have one's seed come from high-yielding plants, but it is better when we know that our high-yielding plant is capable of reproducing high-yielding offsprings. It is for this quality in livestock that we pay high prices. The best way to determine the reproducing powers of a plant is to plant it in a separate row and compare the yield of its offspring with the yield of others or with general crop seed of the same variety.

As will be seen in Table IV the offspring of some of the plants yielded high while others were low. The best row yielded at the rate of 2,272.2 pounds of

seed cotton per acre and the poorest produced less than 800 pounds. The best plants from the ten best rows were saved for the next year's seed patch and again compared in separate rows. In 1919 the number of lines were reduced to one, the seed planted that year having descended from plant number 18, selected in 1916. The strain of Cook grown in this community and bred by Mr. W. W. Eagles and Mr. R. W. Hearn is now known as Edgecombe Cook.

Speed Community

The work at Speed was begun in the spring of 1917. Since the soils of this section are heavier than those around Crisp it was thought best to conduct another variety test. The test was planted on the farm of Mr. B. F. Shelton.

TABLE VII—RESULTS OF COTTON VARIETY TEST IN THE SPEED COMMUNITY—1917
GROWN ON THE FARM OF MR. B. F. SHELTON, SPEED, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed at $70.00 Per Ton	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Mexican Big Boll	2140	713.36	1426.64	32.4	1 1/16	32	$228.28	$49.93	$278.21
Cook's Improved	2020	747.40	1272.60	37.0	7/8	30.5	227.96	44.54	272.50
Trice	1860	587.76	1272.24	31.6	1 1/16	30.5	179.28	44.53	223.81
Columbia	1360	424.78	921.22	31.7	1 1/16	42.5	180.53	32.23	212.76
Ricks' Improved	1700	547.40	952.60	32.2	7/8	30.5	166.96	40.34	207.30
Bertie	1340	434.16	905.84	32.4	1	31	134.59	31.70	166.29
Cleveland	1300	434.20	865.80	33.4	1 1/16	30.5	132.43	30.30	162.73

In this test the Mexican Big Boll cotton yielded best and produced the greatest money value per acre. In addition to the higher yield this variety furnished a splendid quality of 1 1/16 inch staple. At that time this class of cotton brought one and a half to two cents per pound premium over ordinary short staple cotton, but during the past two years it has brought from five to fifteen cents more than the short staple cottons.

The Mexican Big Boll was chosen for future growth in this community. During the past two years it has been selected for earliness and uniformity and should be available for distribution in the community after another season.

Tarboro

Just out of Tarboro on the Cotton Valley farm of Messrs. Holderness and Shook the Dixie Triumph cotton is being selected for wilt resistance. Several farms of the county are badly infested with this disease and a breeder of high grade wilt-resistant cotton seed is needed. The Dixie Triumph selections should be sufficiently increased for distribution in two years.

A third variety test was made on the farm of Mr. T. A. Wiggins, about ten miles southwest of Tarboro.

In this test the Wannamaker Cleveland gave the best results and was chosen for future planting in this section. It is of interest to note the standing of Ricks cotton in all of the tests in this county. When the cotton work was started Ricks was the most popular variety grown in the county. Good seed of the Wannamaker Cleveland cotton were introduced into this community in

1918 and the variety has already become very popular in that section of the county. Mr. Wiggins has saved seed from the best plants in the field and is planting a seed patch each year to further improve this variety for his section.

The success of this work in Edgecombe County has been due, to a large extent, to the splendid work of Mr. Zeno Moore, County Agent, who has interested the best growers of the different communities in the work and has helped to sell the improved seed produced by his communities.

TABLE VIII—RESULTS OF COTTON VARIETY TEST—1917

CONDUCTED ON THE FARM OF T. A. WIGGINS, TARBORO, N. C.

Variety	Yield of Seed Cotton, Pounds	Yield of Lint, Pounds	Yield of Seed, Pounds	Per Cent Lint	Staple, Inches	Price of Cotton Per Pound, Cents	Price of Seed at $70.00 Per Ton	Money Value Per Acre
Wannamaker-Cleveland	1920	739.2	1180	38.5	1 1/16	30.5	$70.00	$266.75
Mexican Big Boll	1920	710.4	1209.6	37	1	30.5	70.00	269.53
Pool's Ideal	1940	679	1261	35	1 1/16	30.5	70.00	251.22
Cook's improved	1800	684	1116	38	1/8	30.5	70.00	247.68
Trice	940	338.4	501.6	36	1	30.5	70.00	120.76
Ricks'	780	288.6	491.4	37	1/8	30.5	70.00	105.21

At a recent meeting in Tarboro the cotton growers organized a county organization that will encourage the growth of the improved strains chosen by the different communities. It is planned to build a cotton seed storage warehouse, equipped with delinting and seed cleaning machinery, so that the improved seed of the county may be marketed cooperatively. The growers who save good seed each year have had no difficulty in disposing of their surplus seed at a good price, though all agree that their greatest profit has come from increased yields due to the saving of good seed each year.

Greene County

The work in Greene County was conducted on the farm of Mr. J. T. Parker, about seven miles south of Farmville. This test included two varieties recommended by the Division of Agronomy and three that were most popular in the community.

TABLE IX—COMMUNITY COTTON VARIETY TEST, GREENE COUNTY—1917

CONDUCTED ON THE FARM OF J. T. PARKER, FARMVILLE, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed at $70.00 Per Ton	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Mexican Big Boll*	1880	662.70	1217.30	35.25	1 1/8	32	$212.05	$42.61	$254.66
Wannamaker-Cleveland Big Boll*	1720	670.80	1049.20	39	1 1/16	30.5	204.59	37.72	241.31
Cook (local)	1640	628.12	1011.28	38.3	1 1/16	30.5	191.58	35.39	226.97
Thorne's Imp. (local)	1600	624.00	976.00	39	1/8	30.5	190.32	34.16	224.48
Steppe (local)	1520	530.04	984.96	35.2	1/8	30.5	163.19	34.47	197.66

*Recommended by the Division of Agronomy, North Carolina Extension Service.

In this section the Mexican Big Boll yielded best and produced the longest staple. At that time (1917) the 1 1/16 inch cotton sold at only one and a half cents per pound above ordinary short staple cotton. Note the standing of the local varieties compared with the two improved varieties. The local varieties had become badly mixed at the gin and contained a large percentage of unproductive plants. The Mexican Big Boll sold for $27.69 more per acre than the best local variety. Does it pay to invest in good seed? Wouldn't an increase like this pay well for the small amount of time required to save good seed each year.

The growers of this community secured good seed of this variety, but no selection work was done. Unless one or more growers of this community save seed in the field each year the seed will soon become mixed and unproductive.

Halifax County

During the fall of 1915 the Office of Markets sampled 949 bales of cotton from communities around Scotland Neck. Of this number 209 bales, or 22 per cent of this lot of cotton, contained lint which stapled less than 7/8 of an inch in length. In comparison with other communities of the State this section ranked low in grade and length of staple produced.

Variety Tests in Two Scotland Neck Communities, 1916

Previous to the variety tests the cotton growers of this section were of the opinion that they were growing the best varieties; and that the poor quality of cotton was due to their unfavorable climate. In order to test this point out it was decided to make two variety tests which would include a few varieties recommended by the Division of Agronomy and the most popular varieties grown in the two communities. It was found that Simpkins, Ricks, Medford, Hawkins, Cook, and Cleveland were the most generally grown varieties. To these the Division of Agronomy added three that had given good results at the Coastal Plain Branch Station, near Rocky Mount. Through the cooperation of Mr. F. P. Shields two uniform pieces of land were secured, one on the river lands near the Shield's Commissary and the other on the higher sandy loam soil just out of Scotland Neck.

The varieties were planted side by side, each variety being given one-tenth of an acre of land. A good stand was secured from all of the varieties, and each one was given the same treatment throughout the season.

Results of the River Test

The river test was located on a uniform field of Wickham Fine Sandy Loam, about two miles from Norfleet.

In this test the Wannamaker Cleveland produced the greatest money value per acre. In addition to its large yield this variety proved sufficiently early for the river lands of this section. In fact, this strain of Cleveland produced almost as much seed cotton at the first picking as some of the locally grown small boll varieties did in the first two pickings.

Results From the Sandy Loam Field

This test was located on the farm of Mr. G. K. Moore, about two miles southeast of Scotland Neck.

TABLE X—SCOTLAND NECK COMMUNITY COTTON VARIETY TEST—1916

CONDUCTED ON THE RIVER FARM OF F. P. SHIELDS, NORFLEET, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed at $70.00 Per Ton	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Wannamaker-Cleveland	3302.5	1387	1915.5	42	1 1/16	$ 0.20	$277.40	$67.04	$344.44
Cook	3117.5	1216	1901.5	39	7/8	.20	243.20	66.55	309.75
Ricks (local)	3125	1156.2	1968.8	37	7/8	.20	231.24	68.90	300.14
Medford (local)	2945	1089.6	1855.4	37	7/8	.20	217.92	64.94	282.86
Cleveland (local)	2972.5	1070.0	1902.5	36	1	.20	214.00	66.58	280.58
Mexican	2682.5	952	1730.5	35.5	1 1/16	.23	218.96	60.57	279.53
Simpkins (local)	2845	1058	1787	37.2	7/8	.20	211.60	62.55	274.15
Hawkins (local)	2747.5	989	1758.5	36	1 1/16	.20	197.80	61.55	259.35
Durango (local)	2145	772.2	1372.8	36	1 1/4	.27	208.50	48.05	256.55

Estimates based on middling cotton at 20 cents and seed at $70.00 per ton. Prices quoted December 7, 1916.

TABLE XI—SCOTLAND NECK COMMUNITY COTTON VARIETY TEST—1916

CONDUCTED ON THE SANDY LOAM FARM OF G. K. MOORE, SCOTLAND NECK, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed at $70.00 Per Ton	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Wannamaker-Cleveland	1960	842.8	1117.2	43.0	1 1/16	$ 0.20	$168.56	$39.10	$207.66
Cleveland (local)	1510	566.2	943.8	37.5	1	.20	113.24	33.03	146.27
Mexican	1270	457.2	812.8	36.0	1 1/16	.23	105.15	28.45	133.60
Ricks (local)	1400	490	910	35.0	1 1/16	.20	98.00	31.85	129.85
Medford (local)	1300	494	806	38.0	7/8	.20	98.80	28.21	127.01
Cook	1290	490.2	800	38.0	1 1/16	.20	98.04	28.00	126.04
Trice	1420	468.6	951.4	33.0	7/8	.20	93.72	33.30	127.02
Simpkins (local)	1170	432.9	737.1	37.0	7/8	.20	86.58	25.80	112.38
Hawkins (local)	1190	422.5	767.5	35.5	1 1/16	.20	84.50	26.86	111.36
Durango (local)	880	325.6	554.4	37.0	1 1/4	.27	87.91	19.40	107.31

Estimates based on middling cotton at 20 cents and cotton seed at $70.00 per ton. Prices quoted December 7, 1916.

The results of this test are very similar to those of the river test in regard to the standing of the varieties. The Wannamaker Cleveland again leads the test in this locality. It is interesting to note that the first three varieties of this test are large boll varieties. The results of these and other tests indicate that the poorly-bred early small boll cottons have no place in this section of the State.

In both of these communities the growers have secured a large quantity of the best Wannamaker Cleveland cotton seed, but no effort has been used to keep it pure and selected to a high standard of yield. In a visit to this section last fall it was found that the seed had become mixed during the past three years and that considerable anthracnose (boll rot) had gotten into the river plantings. The growers of this section should lose no time in securing pure seed, free from disease for planting another year.

Hertford County

Some of the counties have profited by tests made in adjoining or neighboring counties. This was the case in Hertford County. Since Wannamaker's Cleveland Big Boll had given good results in Edgecombe and Halifax counties County Agent E. W. Gaither introduced it into Hertford County. It met with favor from the start and has gradually been distributed over the county. The following report from growers who have grown this variety speaks well for improved seed:

TABLE XII—COMPARISON OF IMPROVED AND UNIMPROVED SEED IN HERTFORD COUNTY—1919

	Improved	Unimproved
Number of farms reporting	27	27
Number of acres	142	180
Yield of seed cotton per acre	1335	872
Seed cotton required to gin a bale	1286	1394
Amount of lint per bale	513	506
Yield of lint per acre	533	317
Per cent of lint	39.9	36.8
Difference in yield of lint per acre (pounds)	216	

The growers of this county expect to save seed from the best plants in the field this fall. Up to this time no selection has been done, so a large portion of the good seed originally introduced into this county has become mixed and unproductive, due to the lack of seed selection. Such seed that has been grown more than two years without saving good seed in the field should not be used or sold for seed purposes. The growers of this county should select good seed or buy good seed from the breeders who are keeping their seed up to standard by saving good seed each year.

Iredell County

The work in this section has been done on the Piedmont Branch Station, at Statesville, and on the Hickory Grove Farm, at Conover, N. C. (Catawba County). In the tests at the Branch Station Farm, King No. 29, a selection made at the Central Station Farm, and Trice have given good results. The King No. 29 is being selected each year, both on the Piedmont Branch Station Farm at Statesville and on the Hickory Grove Farm at Conover, N. C.

Johnston County

The work in Johnston County was started this spring in a community about ten miles south of Smithfield. Keep in touch with your county agent and get the results of this test. It includes the most popular varieties grown in Johnston County.

Lenoir County

Through the work of Mr. O. F. McCrary, then county agent of Lenoir County a community near Kinston became interested in the improvement of their cotton. A few of the most generally grown varieties of that section and three varieties recommended by the Division of Agronomy were selected for the test. The varieties were planted in a uniform field on the farm of Mr. R. F. Hill.

TABLE XIII—COMMUNITY COTTON VARIETY TEST—1916

CONDUCTED ON THE FARM OF R. F. HILL, KINSTON, N. C.

Variety	Yield Seed Cotton Per Acre, Pounds	Yield Lint Cotton Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent Lint	Length of Staple, Inches	Value of Lint		Value of Seed at $70.00 Per Ton	Total Value Lint and Seed Per Acre
						Per Pound	Per Acre		
Mexican Big Boll	671	246.9	424.1	36.8	1 1/16	32	$79.00	$14.84	$ 93.84
Cook	638	261.7	376.3	40.7	7/8	30.5	79.81	13.17	92.98
Cleveland (Hill)	561	216.5	344.5	38.6	7/8–1 1/8	30.5	66.03	12.05	78.08
Russell's Big Boll	539	191.3	347.7	35.5	1 1/8	30.5	58.34	12.16	70.50
Simpkins	385	144.4	240.6	37.5	7/8	30.5	44.04	7.34	51.74
Cleveland (Wannamaker) *	253	104.9	148.1	41.5	1 1/8–1	31	31.57	5.18	36.75

*Poor yield due to very poor stand on side of field occupied by this variety. In more recent comparisons the Wannamaker-Cleveland has been equal to the Mexican Big Boll and has been more popular in this community.

In this test the Mexican Big Boll cotton yielded best. On account of the poor stand from Wannamaker Cleveland it was thought best to compare this variety with the Mexican Big Boll another year. In the second test the Cleveland Big Boll cotton yielded best. In recent years the Cleveland cotton has been gaining ground in this section though very little is being done to save good seed. Mr. L. O. Mosely, of Kinston, has started some field work in this section.

Lincoln County

Two communities of Lincoln County have organized to improve their cotton. One of these communities is located near Crouse and known as the Pinehurst Community; the other is just north of Lincolnton and is known as the Daniels Community.

TABLE XIV—PINEHURST COMMUNITY COTTON VARIETY TEST, LINCOLN COUNTY

CONDUCTED ON THE FARM OF MR. M. W. LEONHARDT, CROUSE, N. C., 1919

Variety	Weight of Seed Per Acre, Pounds	Weight of Lint Per Acre, Pounds	Weight of Cotton Seed Per Acre, Pounds	Per Cent Lint	Length of Staple Inches	Money Value Per Acre	Source
Wannamaker-Cleveland	1050	635	1685	37.72	1 1/8	$228.60	Wannamaker.
Cook's	901	395	1496	39.77	7/8	214.20	Eagle.
Mexican	917	516	1433	36.07	1 1/16	211.56	Coastal Plain Branch Station.
Simpkins	842	544	1386	39.29	7/8	195.84	J. T. Beam.
Trice	1135	534	1669	32.00	1	192.24	Washington.
Manly's Heavy Fruiter (local)	917	532	1449	36.75	7/8	191.52	J. C. Beam.
Cleveland	915	518	1433	36.20	1 1/8	186.48	Coker.
Lone Star	738	411	1149	35.79	1 1/16	168.51	Christian.
Cook (local)	794	466	1260	37.03	7/8	164.76	Leonhardt.
Cleveland (local)	723	415	1138	36.55	1	149.40	Local.
Cook's Improved	651	414	1065	38.89	7/8	149.04	Coker.

Since the results of the two tests are very similar, only those from the Pinehurst Community are given. In both cases the Wannamaker Cleveland cotton

yielded best. At a meeting in the Pinehurst Community last fall the growers discussed the merits of the different varieties and agreed upon the Wannamaker Cleveland cotton for the community. The growers present gave the county agent a club order for good seed of this variety. This fall the county agent and a representative from the Division of Agronomy will visit the community to give demonstrations in the selection of cotton seed in the field.

The growers of the Daniels Community were undecided between two varieties in the test, so these two varieties are being tested again this year. In the 1919 test Cleveland Big Boll produced the largest money value per acre though Texas Big Boll yielded the largest quantity of seed cotton per acre. The Cleveland Big Boll produced 37 per cent lint and the Texas Big Boll yielded only 34. This difference in percent of lint and the slight difference in yield gave the Cleveland cotton a larger money value per acre.

In connection with the work in Lincoln County credit is due Mr. W. L. Smarr, County Agent, for interesting the communities in the work, helping with the tests and giving publicity to the results after the tests were made.

Mecklenburg County

The cotton improvement work in Mecklenburg County was done in the Steel Creek section. The Steel Creek section includes several communities, so the growers of the different communities requested that at least three localities be represented in the testing of varieties. In 1916 tests were made on the farms of Mr. S. M. Neely, Mr. J. P. Stroup, and Mr. C. B. Choat. In these tests Mexican Big Boll, Wannamaker's Cleveland, and Jones' Improved Cook gave the best yields. When a meeting was held to decide upon one variety the growers were divided between the three varieties. No one of the three varieties mentioned above stood out sufficiently to make the choice decisive. In order to get the unanimous vote on one variety it was decided to test out the three varieties another year. In 1917 these varieties were tested on the farms of Mr. John McDowell, Mr. W. H. Neely, and Mr. W. E. Smith.

TABLE XV—COMMUNITY COTTON VARIETY TEST

CONDUCTED ON THE FARM OF MR. JOHN MCDOWELL, CHARLOTTE, N. C., R. 3

Variety	Total Yield Seed Cotton Per Acre, Pounds	Yield of Lint Per Acre, Pounds	Yield Seed Per Acre, Pounds	Per Cent of Lint	Length of Staple, Inches	Value Lint in Cents Per Pound	Total Value Per Acre
Mexican Big Boll	1240	452.6	787.4	36.5	1 1/16	30.5	$ 165.59
Cleveland Big Boll	1160	452.4	707.6	39.0	1 1/16	30.5	162.74
Cook's Improved	1080	410.4	669.6	38.0	7/8	30.5	148.60

TABLE XVI—COMMUNITY COTTON VARIETY TEST

CONDUCTED ON THE FARM OF W. H. NEELY, PINEVILLE, N. C., R. 15

Variety	Yield of Seed Cotton Per Acre, Pounds	Yield of Lint Per Acre, Pounds	Per Cent of Lint	Length Lint in Inches	Value in Cents Per Pound	Value of Lint Per Acre	Total Value of Seed and Lint
Mexican Big Boll	2121.60	793.48	37.4	1 1/16	30.5	$ 242.01	$ 281.49
Cleveland Big Boll	1644.16	669.17	40.7	1 1/16	30.5	204.09	238.39
Cook	1639.08	606.49	37.0	7/8	30.5	184.97	221.11

TABLE XVII—COMMUNITY COTTON VARIETY TEST—1917

CONDUCTED ON THE FARM OF MR. W. E. SMITH, PINEVILLE, N. C., R. 15

Variety	Yield of Seed Cotton Per Acre, Pounds	Yield of Lint Per Acre, Pounds	Yield of Seed Per Acre, Pounds	Per Cent of Lint	Length of Lint Inches	Value of Lint in Cents Per Pound	Total Value of Seed and Lint
Cleveland	800	325.6	474.4	40.9	1 1/8	30.5	$ 115.90
Mexican	740	276.8	463.2	37.4	1 1/8	30.5	100.62
Cook	740	273.8	466.2	37.0	1/8	30.5	99.81

In two of these three tests the Mexican Big Boll cotton yielded best and in one the Cleveland Big Boll cotton yielded best. This section could never come to an agreement on one variety, but good seed of both of these varieties were introduced. In fact, a good strain of Mexican was already being grown in one of the communities. The communities of this section need to secure pure seed and begin selecting in the field to keep the improved cotton productive and free from undesirable mixtures.

Onslow County

The work in Onslow County was started this spring when a variety test was planted on the farm of Mr. D. W. Smith, near Kellum, N. C.

Pasquotank County

In this county the Edgecombe Cook has given good results. Good seed of this variety have been brought in by Mr. Buxton White, of Elizabeth City. Field selections have been made by Mr. White and every effort is being used to produce a high yielding cotton of good quality for this section.

Pender County

Through the request of Mr. R. T. Melvin, County Agent, and a few cotton growers of Atkinson, a community variety test was conducted on the farm of Mr. R. V. Eakins, in 1919.

TABLE XVIII—ATKINSON COMMUNITY COTTON VARIETY TEST—1919

CONDUCTED ON THE FARM OF MR. R. V. EAKIN

Variety	Seed Cotton Per Acre, Pounds	Seed Per Acre, Pounds	Lint Per Acre, Pounds	Per Cent Lint	Length of Staple Inches	Money Value Per Acre,	Source of Seed
Wannamaker-Cleveland	2410	1453	957	39.30	1 1/8	$414.09	Wannamaker.
Young's Big Boll	2467	1571	896	36.33	1 1/8	396.89	Local
Simpkins' Ideal	2467	1589	878	35.60	1/8	391.11	Local.
Cook	2298	1399	899	39.13	1 1/8	390.88	Eagle.
Mexican Big Boll	2092	1343	749	35.60	1 1/16	369.16	Coastal Plain Branch Station.
Simpkins' Big Boll	2397	1577	820	34.21	1 1/8	369.03	Local.
Mitchell's Improved	2279	1487	792	35.08	1/8	356.64	Local.
Ricks	2279	1487	792	35.21	1/8	354.89	Local.
Lone Star	1866	1167	699	37.50	1 1/16	332.33	Christian.
Russell's	1947	1286	661	33.95	1/8	298.07	Local.

When the results were presented to the growers of this community last fa the Wannamaker Cleveland was chosen as the standard variety of the com munity. Several growers of the community secured the best seed of this variet and are planning to make field selections this fall. Mr. W. A. Corbett, th principal ginner for this community, is cooperating to help keep the improve seed free from mixtures at the gin.

Sampson and Scotland Counties

The cotton work in these two counties was started this Spring. In Samp son County a variety test has been planted on the county home farm, nea Clinton. This test includes a large number of varieties of cotton from all part of the county and a few varieties that are recommended by the Division o Agronomy. Cotton growers of this county should keep in touch with this tes and their county agent, R. T. Melvin, in order to get seed of the cotton whic yields best.

In Scotland County variety tests have been planted on the farms of Messrs D. K. McRae, B. I. Nicholson, and Walter Roper, near Laurinburg. A repor of this work will be given to the local papers this fall.

GENERAL RESULTS OF THE COMMUNITY COTTON IMPROVEMENT WORK

During the past fifteen years the North Carolina Experiment Station an Department of Agriculture has been conducting cotton variety tests on th Central and Branch Station farms. Certain varieties have yielded well in th Piedmont and others have produced well in the Coastal Plain section. Som of the good varieties have been improved by selecting good seed in the fiel each year. In order to have these high yielding varieties more generally grow the Extension Service has taken seed into the different communities to com pare their yielding power with the varieties ordinarily grown there. Sinc these tests were started in 1915 a better variety has been introduced into ever community worked with, except one. Considering all of the tests the bes varieties recommended by the Division of Agronomy have yielded $28.97 mor per acre than the best varieties found in the communities. Had all of th cotton growing communities of the State used varieties best suited to thei sections our 1919 cotton crop would have brought about $41,000,000 more tha it did. If your community is not growing an improved variety of cotton yo may be sure that your profits from cotton are not what they should be. Get i touch with your county agent or find out from the Division of Agronomy, Wes Raleigh, where the best cotton seed for your section can be secured.

THE LONG STAPLE COTTON FOR NORTH CAROLINA

The recent high prices paid for long staple cotton have created considerabl interest in the growth of this crop. Cotton growers of every section are askin if it can be grown in their locality and what variety should be used. A fe growers are of the opinion that the long staple varieties yield as well as th short staple varieties. This is far from true, as will be seen by the results o eleven variety tests conducted by the North Carolina Experiment Station dur ing the past six years. From each of the eleven tests the highest yieldin short staple variety and the highest yielding long staple variety were take

for comparison. The short staple varieties had yielded an average of 551 pounds of lint and 856 pounds of seed, while the long staple varieties yielded only 353 pounds of lint and 684 pounds of seed per acre. The short staple varieties had outyielded the long staple varieties by nearly 200 pounds of lint and 172 pounds of seed per acre. Previous to 1918 the difference in price on most North Carolina markets was not sufficient to warrant the growth of long staple cotton.

Isolated growers have found it very difficult to get the true value of their long staple cotton, and even large growers have found it necessary to sell much lower than the market price in other localities. The author has in mind an example which occurred this past fall. A grower who had developed a good strain of long staple cotton by carefully selecting his plants each year, selected two samples of cotton from the same bale. One sample was sent direct to a North Carolina long staple market and the other was sent to a friend in Georgia, and then forwarded to the same market and priced the same day. The sample that went through Georgia was valued at eleven cents more per pound than the same that came direct from the North Carolina grower. Shall we assume that the trip into Georgia increased the quality of the sample eleven cents or shall we assume that North Carolina long staple cotton is being discriminated against.

The best results from long staple cotton will come in communities where sufficient quantities are grown to warrant the establishment of a long staple market, or shipping in large quantities. Individual growers usually find it difficult to keep their seed pure and very few public gins are prepared to gin the long staple cotton properly. Unless the long staple cotton is thoroughly dried and ginned slowly the staple will be damaged. Since the market value of this crop is dependent upon the length of staple and its uniformity it is very important that it be kept free from mixtures of short staple cotton. These mixtures may come in at the gin, by crossing in the field, or by natural variation of the original stock. For this reason growers of long staple cotton should select seed carefully each year or secure them every two years from a grower who does practice careful seed selection.

Long staple cotton can be grown on most of the light, well drained sandy and sandy loam soils east of Wake County and south of Edgecombe County. Along the South Carolina line the area would extend as far west as Gaston County. During the past few years the limits for growth of this type of cotton have been considerably extended by the development of early strains of Webber, Hartsville, and Columbia.

The recent high prices for long staple cotton have been due to the reduced production of Sea Island and long staple cotton in the boll weevil section. During the past four years the Sea Island crop has been reduced from 107,500 bales to approximately 40,000 in 1919. These two types of cotton have suffered very heavily from boll weevil attack. The recent introduction of early strains and the increased production of long staple cotton in the Southwest should soon bring the production back to normal. The demand for long staple cotton is limited and the shorter staples are now being used to manufacture thread and materials that were previously made from long staple cotton. For this reason the present difference in price between short and long staple cotton is not likely to continue very long.

Long staple cotton growers cannot be too cautious in buying seed. Never buy long staple cotton seed unless you know something of the variety and the

conditions under which they were grown. Long staple cotton requires co tinuous careful selecting to keep the staple long and uniform. It makes n difference how careful the seed are handled to prevent mixing in the field ar at the gin, short staple plants will creep in. It would be safe to say that n long staple seed should be used for seed purposes more than three years unle careful seed selection is practiced each year. It would be a better investme to pay $25.00 per bushel for well bred seed of a tried variety than to pa twenty-five cents per bushel for uncertain seed. Ask your county agent or dr a card to the Division of Agronomy for sources of the best long staple seed ar buy them early.

A large number of long staple cottons have been examined here in th variety tests and in different sections of the State. Some of the fields ha furnished a uniform lot of first-class long staple cotton, while others have co tained mixtures of five to as high as 60 per cent of short staple cotton. Bad mixed long staple cotton is worth less on the market than good short stap cotton.

No other field crop requires so much care in the saving of seed as long stap cotton. The careful breeder not only examines the seed plants for high yie but for long, uniform staple, dense fiber, good drag and body, and earlines Failure to select one year may defeat the work of ten or more years. Growe who are not prepared to save good seed each year should buy them from reliable breeder every two years.